

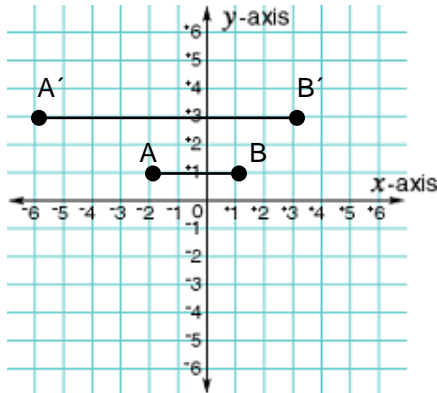


Dilations (page 2)

I. Describe a dilation in two words. **Stretch or Shrink**

II. Complete 2 of the 3 questions in this section. Find the coordinates of the original figure and the image. Use this information to write the coordinate notation and scale factor for the dilation.

1)



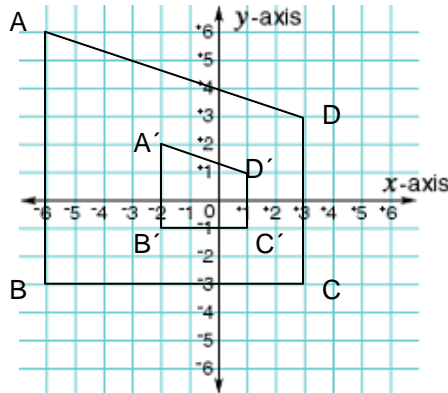
$$A(-2, 1) \rightarrow A'(-6, 3)$$

$$B(1, 1) \rightarrow B'(3, 3)$$

$$(x, y) \rightarrow (3x, 3y)$$

Scale Factor: 3

2)



$$A(-6, 6) \rightarrow A'(-2, 2)$$

$$B(-6, -3) \rightarrow B'(-2, -1)$$

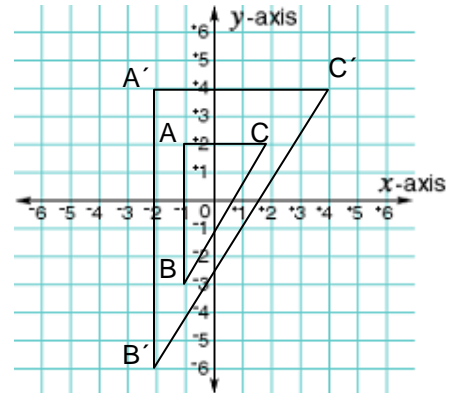
$$C(3, -3) \rightarrow C'(1, -1)$$

$$D(3, 3) \rightarrow D'(1, 1)$$

$$(x, y) \rightarrow \left(\frac{1}{3}x, \frac{1}{3}y\right)$$

Scale Factor: $\frac{1}{3}$

3)



$$A(-1, 2) \rightarrow A'(-2, 4)$$

$$B(-1, -3) \rightarrow B'(-2, -6)$$

$$C(2, 2) \rightarrow C'(4, 4)$$

$$(x, y) \rightarrow (2x, 2y)$$

Scale Factor: 2

III. Complete 3 of the 4 questions in this section. The vertices of a figure are given. Find the coordinates of the vertices after a dilation having the given scale factor.

1) $A(-2, 3)$, $B(2, 1)$, $C(4, -4)$; scale factor: 12

$$A'(-24, 36), B'(24, 12), C'(48, -48)$$

2) $X(1, -3)$, $Y(-3, -1)$, $Z(4, -5)$; scale factor: 1.5

$$X'(1.5, -4.5), Y'(-4.5, -1.5), Z'(6, -7.5)$$

3) $L(100, 40)$, $M(-80, 45)$, $N(20, -30)$; scale factor: $\frac{1}{10}$

$$L'(10, 4), M'(-8, 4.5), N'(2, -3)$$

4) $E(-6, 6)$, $F(-18, 36)$, $G(24, 12)$; scale factor: $\frac{1}{6}$

$$E'(-1, 1), F'(-3, 6), G'(4, 2)$$

IV. Explain your reasoning:

You dilate $\triangle ABC$ using a scale factor of $\frac{1}{4}$. You then dilate its image using a scale factor of 2.

Do you get the same final image if you switch the order of the dilations? Explain.

Yes because multiplication is commutative.